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# Use of Z-plasty in the treatment of severe colostomy stenosis

## Z-plastika gydant ženklią kolostomos stenozę

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Stenosis of stoma is late complication after colostomy in about 1–13% of the patients. The severe colostomy stenosis needs surgical treatment because resulting bowel obstruction with possibility of emergency operation and serious complications. In four year period we treated 7 patients with severe colostomy stenosis with Z-plasty according Lyons and Symon technique. All the treated stenoses were end-colostomies resulted from abdominal-perineal resection of the rectum for adenocarcinoma. There were no intra and postoperative complications, with good functional results and without recurrences of the stenosis within follow-up period of the 6–36 months. Z-plasty is easy and safe procedure for stenosis of the stoma after end-colostomy. This extra-abdominal procedure used on day-surgery basis, eliminate possibility for intraperitoneal complications.

**Key words:** colostomy, stenosis, Z-plasty

Stomos susiaurėjimas, arba stenožė, yra vėlyva kolostomos komplikacija ir ji pasitaiko 1–13 % atvejų. Ženklią stomos stenožę reikia koreguoti chirurginiu būdu, nes ji sukelia žarnų nepraeinamumą ir net gali baigtis skubia operacija ir sunkiomis komplikacijomis. Per 4 metų laikotarpį mes operavome 7 pacientus, turinčius didelę stomos stenožę, atlikdami Z-plastiką pagal Lyonso ir Symono techniką. Visos stomos buvo galinės ir po tiesiosios žarnos ekstirpacijos dėl vėžio. Komplikacijų nebuvo nei operacijos metu, nei pooperaciniu laikotarpiu, o stebint ligonius nuo 6 iki 38 mėnesių po operacijos stenožės recidyvų nekonstatuota. Z-plastika buvo paprasta ir saugi metodika galinės stomos stenozei koreguoti. Šiai operacijai nereikia atverti pilvo ertmės ir ji atliekama dienos stacionare, kartu padeda išvengti intraperitoninių komplikacijų.

**Reikšminiai žodžiai:** kolostoma, stenožė, Z-plastika

### Introduction

Colostomy formation is a common and simple surgical procedure with possibility of creating stenosis in about 1–13% of the patients [1, 2]. Ischemia is a leading factor in the stomach stenosis formation after end-colostomy procedure. The severe stenosis is late complication with partial and or complete bowel mechanical obstruction requiring surgical intervention [3]. Different surgical

techniques are used in treatment of severe stenosis resulted from end-colostomy: local excision of the scar tissue at the mucocutaneous junction or translocation and creation of the new stoma [4]. Extra-abdominal procedures such Z-plasty, W-plasty and extracorporeal staple technique were easy surgical procedures which eliminate a need for stoma dislocation and possibility for intraperitoneal complications [5–7].

## Material and methods

In the four year period (2013–2016), 7 patients aged from 49–74 years were operated for severe colostomy stenosis. The male-female ratio was 4:3. All patients were previously treated with end-colostomy for adenocarcinoma of the rectum using abdomino-perineal resection of the rectum. The patients were operated in general endotracheal anesthesia. Z-plasty according Lyons and Symon (1960) was used as a surgical technique.

Short description of the Z-plasty technique: excision of the skin and strictured colostomy with bowel separation from then cutaneous tissue. Bowel was freed on the facial level, following with double classical Z-plasty incision of the skin and bowel on both sides of the stoma and Z-plasty creation of the new stoma [7]. No antibiotic prophylaxis was used prior or after the surgical treatment.

## Results

There were no cases of intraoperative or postoperative complications. Operative time varied between 30–45 min. Patients leaved the hospital after 24 hours, without need for analgesia. Newly created Z-plasty stoma started to function after 6–18 hours after the operation. During the follow-up of the patients in 6–36 months period, there was no recurrence of the stenosis. All patients were satisfied with the functional results of the operation.

## Discussion

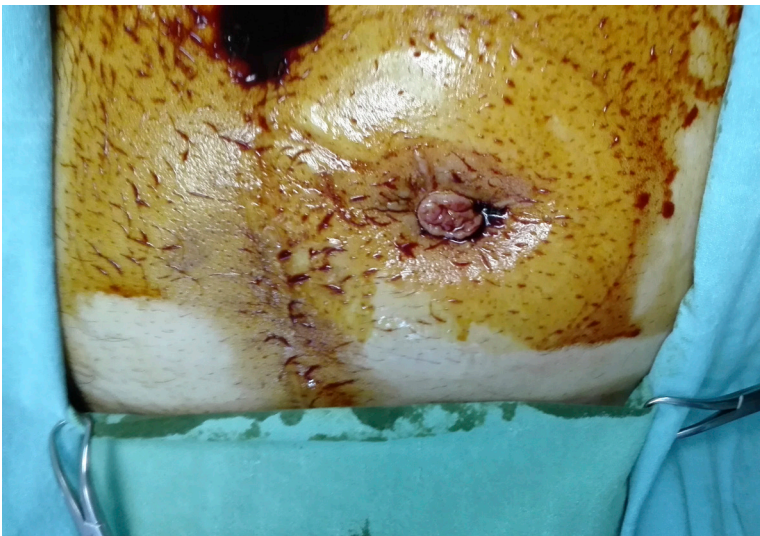
Severe stenosis of end-colostomy is a serious late complication that requires surgical treatment. Standard procedure that is used for treatment is re-dislocation of the stoma which is a surgical procedure with possibility for a number of complications during the freeing of colon descendens and creation of new stoma.

The results from local excision of scar tissue at the mucocutaneous junction is not satisfactory, although have been used very often. In a series of 71 patients Allen-Mersh published good results in only 60% of the patients, including a number of recurrent operations [4].

Extra-abdominal operations of severe end-colostomy stenosis are relatively easy to perform with good functional results. Z-plasty technique does not require hospitalization, can be performed on a daily basis, is cost-effective and most important, do not expose patients on risk for intraperitoneal operations [5, 7, 8].

Small number of patients in published series is not sufficient to give insight in the advantages of the extra-abdominal procedure including Z-plasty [5–7].

Extracorporeal staple technique published in 2015 by Skokowski is original and simple stapler procedure, but it is published only on one patient and requires confirmation of it's advantages on a larger number of cases.



**Figure 1.** Severe end-colostomy stenosis



**Figure 2.** Z-plasty colostomy

## Conclusion

Z-plasty technique in the treatment of severe stenosis of end-colostomy is easy, safe and cheap surgical procedure. First of all, it's importance is in good functional results, without exposing the patients to unnecessary risks

from re-dislocation of the colostoma. In future, there is a need for comparison of different extra-abdominal operations in the treatment of severe stenosis, including extra-corporal stapler treatment in order to identify the most appropriate technique.

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